

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in and relating to the production of Reinforced Bags

I, STEFFEN HAMMER, a Subject of the King of Norway, of 12, Voll terrasse, Jar, Norway, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a method for the production of reinforced bags, such as tobacco pouches or similar articles, from thermoplastic foil stiffened by an inserted sheet of paper, cardboard or the like.

Such bags have of recent years been extensively used, among others, for packing of tobacco, the bag then being given the form of a tobacco pouch.

The invention has for its object to provide a method by which the production of such tobacco pouches and the like can be made at desired speed and with substantially less waste than in earlier known methods.

According to the invention there is provided a method for the production of a flat double-walled reinforced bag, such as a tobacco pouch or the like, provided with a closing flap and being made from a foil of thermoplastic material, with a stiffening sheet of paper, cardboard or other suitable material inserted between two foils forming walls of the bag which foils are then welded together along the edges outside the contours of the stiffening sheet, wherein the stiffening sheet after being inserted in correct position between the foils is secured in said position to the foils before said foils and the located stiffening sheet are subjected to subsequent folding, welding and severing operation to form the finished bag. The securing in position of the stiffening sheet prevents its displacement during the subsequent steps of the production. Such displacement results in that the welding seams along the edges of the finished product are unequal and often are so deficient that they

do not give a sufficiently strong inter-connection.

The fixing of the inserted sheets in relation to the foil web can be effected by various means. According to a preferred method the fixing is effected by spot welding. The fixing, however, also may be carried out by means of pressure-sensitive adhesive or other convenient securing means.

The invention will now be described with reference to the accompanying drawings where the production steps comprised by the invention are diagrammatically shown. In the drawings:

Fig. 1 is a perspective view of a longitudinally folded foil web formed to a tobacco pouch stiffened by an inserted paper-sheet,

Fig. 2 is a section along the line II—II in Fig. 1,

Fig. 3 shows a tobacco pouch blank just before the welding together, and

Fig. 4 shows the finished tobacco pouch.

A supply roll 1 consists of a continuous web 2 of thermoplastic foil material which is longitudinally folded. As can be seen from Fig. 2 one web portion is folded down on the other web portion in such a manner that one edge 3 of the foil is spaced inwardly of the other edge 4.

The web 2 is then fed past an inserting member 5, consisting of a thin bent metal plate, the bent edge of which is directed against the direction of supply of the web. The inserting member is arranged in between the two web portions and a stiffening sheet 7 of paper or the like can be led into the opening 6 in the member 5 and be pushed into place between the web portions. The sheet 7 is preferably provided with a folding line 8, the object of which will be further explained in the following.

After the sheet 7 has been inserted in place between the web portions as shown by dotted

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lines in Fig. 1, a welding electrode 9 is brought down against the webs and the sheet, and produces three spot welding areas 10. The sheet and the web portions are thereby mutually fixed in proper relation to each other during the subsequent folding and welding operations.

At 7¹ in the drawing is shown a stiffening sheet secured between the two web portions by means of the welding spots 10. One short side of the sheet 7¹ rests firmly against the fold edge 2¹ of the web, while the other short side substantially registers with the edge 3 of the shorter web portion.

The further stages in the production of tobacco pouch consists of folding the web with the inserted sheets, said folding being carried out along the folding line 8¹ of the sheets. Such a folding line on the sheets is not essential but will assist in obtaining an exact folding, and in obtaining a fold exactly at the desired location.

Simultaneously with said folding, indicated at 11 on Fig. 1, the edge 4 of the web is folded over the shorter edge 3, as shown at 12 in the drawing. When both of these folds are made, the web will look approximately as shown in the perspective view of Fig. 3, illustrating a cut-off piece of the web with the enclosed stiffening sheet. In this folded form the web is subjected to the action of a transverse welding electrode 17. By forward feeding of the web and intermittently bringing down the electrode 17 in an exactly adjusted position, transverse welding seams are provided immediately along the longer edges of the stiffening sheet 7. By means of a following cutting mechanism (not shown) the blanks are severed to form finished tobacco pouches as shown in Fig. 4.

As mentioned the drawing is only schematic and the various elements assisting in the folding of the edges of the web and actuating the welding electrodes etc. in synchronized sequence are not shown for the sake of clarity. Such elements do not form essential parts of the invention.

A finished tobacco pouch as shown in Fig. 4 will be exact in its form due to the fact that from the start of the production the inserted sheet 7 is fixed in place, so that the welding seams 13 and 14 will extend with the same width along the edges of the inserted stiffening sheet 7. If it were possible for the sheet 7 to be displaced, one of these marginal edges could easily have been more narrow than the other, so that the finished tobacco pouch would have an unfavourable appearance or one of the welding seams would provide such a deficient securing that it had a tendency to burst.

The method described also gives further advantages. Thus only one single transverse welding electrode is necessary, the one of the short sides of the finished pouch being obtained by the folding edge 2¹. The other short side

is produced by folding over the protruding edge 4. By the finishing welding operation this edge is secured down to the flap part of the tobacco pouch, as clearly seen from Fig. 4. Thereby said edge is held firmly in place without the necessity of any welding seam along the same. At the same time there is, however, produced a small pocket 16, which with advantage may be used for keeping cigarette paper.

In the example shown the web for the production of the bags is formed as a longitudinally folded continuous foil web, fed from a supply roll 1. It is however, possible to arrange the apparatus for such production so that the bags are produced from a single plastic foil web by which suitable folding elements is given the shape shown in Fig. 2.

WHAT I CLAIM IS:—

1. A method for the production of a flat double-walled reinforced bag, such as a tobacco pouch or the like, provided with a closing flap and being made from a foil of thermoplastic material, with a stiffening sheet of paper, cardboard or other suitable material inserted between two foils forming walls of the bag which foils are then welded together along the edges outside the contours of the stiffening sheet, wherein the stiffening sheet after being inserted in correct position between the foils is secured in said position to the foils before said foils and the located stiffening sheet are subjected to subsequent folding, welding and severing operation to form the finished bag.

2. A method as claimed in claim 1, wherein the stiffening sheet is secured to the foils by means of spot welding.

3. A method as claimed in claim 1, wherein the stiffening sheet is secured to the foils by spot and/or line pressure adhering by means of pressure sensitive adhesive spots and/or lines arranged on the sheets.

4. A method as claimed in claim 1, wherein the bags are produced from a continuous fed, double web of thermoplastic foil material, which is folded along a longitudinal folding line, wherein the folding of the web is carried out in such a way that the free edge of the one web portion is spaced inwardly of the free edge of the other web portion, whereupon the folded web is led past an inserting member for the stiffening sheets with a web portion on each side of said member, which co-operates with a welding electrode or a pressure piston which can be brought down against the web with the inserted sheet and fasten said sheet to the web.

5. A method as claimed in claim 4, wherein the stiffening sheets are provided with a folding line before they are placed between the foil web halves.

6. A method as claimed in claim 4 or claim 5 wherein the welding together of the two web portions outside the edges of the sheet

for forming of the finished bag is performed by transverse welding seams, the free edges of the web portions being closed by folding the outward extending edge over the other edge
5 before the transverse welding seams are formed.

7. A method for the production of reinforced bags substantially as hereinbefore des-

cribed with reference to the accompanying drawings.

8. A reinforced bag produced by the method as claimed in any preceding claim.

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